Rutgers University
The State University Of New Jersey
College of Engineering
Department of Electrical and Computer Engineering

330:542 Information Theory and Coding Spring

SYLLABUS

- **Primary topics**
  - Noiseless channels and channel capacity
  - Entropy, mutual information, Kullback-Leibler Distance and other measures of information
  - typical sequences, asymptotic equipartition theorem
  - prefix codes, block codes, data compression, optimal codes, Huffman, Shannon-Fano-Elias, Arithmetic coding
  - memoryless channel capacity, coding theorem and converse
  - Hamming codes
  - Gaussian channels and capacity
- **Other topics as time permits:**
  - Noiseless Channel Coding
  - BCH, Cyclic Codes
  - Kolmogorov Complexity
  - Relations Between Information Theory and Statistics
  - Lempel-Ziv Coding
  - Convolutional Coding
  - Network Information Theory
  - Information Theory and the Stock Market